

CLAIMS

1. A method of manufacturing elements of relatively small size,
5 especially such as planchettes, comprising the following steps:
 - a wound sheet is unwound, then
 - optionally, this sheet is printed at least partly on at least one side and then
 - the sheet is cut deeply “right through” along a succession of at least
10 two cutting patterns that intersect so as to constitute a resulting pattern that will form a detached element constituting the element of relatively small size, this cutting operation taking place by means of a succession of synchronized cutting cylinders carrying one of the cutting patterns respectively, anvil cylinders being interposed between these cutting
15 cylinders, the sheet passing between all these cylinders and
 - the detached elements that form said elements of relatively small size are recovered.
2. The method as claimed in claim 1, characterized in that the steps are
20 carried out in line.
3. The method as claimed in claim 2, characterized in that it is carried out at a speed of between 20 and 150 m/min.
- 25 4. The method as claimed in one of claims 1 to 3, characterized in that said sheet is a sheet of paper, a sheet of nonwoven or a sheet of plastic, or a complex of these materials.
5. The method as claimed in one of claims 1 to 4, characterized in that the

sheet is printed by flexography.

6. The method as claimed in one of claims 1 to 5, characterized in that the sheet is printed in an amount of 1 to 10 g/m² per side, preferably between 2 and 5 g/m² per side.
7. The method as claimed in one of claims 1 to 6, characterized in that the sheet is printed on only one side.
8. The method as claimed in one of claims 1 to 6, characterized in that the sheet is printed on both its sides in succession by front/back registration, in particular by turning the sheet over or by reversing the rotation of a printing unit.
9. The method as claimed in one of claims 1 to 8, characterized in that said sheet has a thickness of between about 5 and 110 µm.
10. The method as claimed in one of claims 1 to 9, characterized in that the detached elements are recovered by stripping, in particular using a peel bar and suction.
11. The manufacturing method as claimed in one of claims 1 to 10, characterized in that the largest dimension of the detached element is between 0.5 and 6 mm, preferably between 1 and 4 mm.
12. A method of cutting out elements of relatively small size, especially such as planchettes, characterized in that, starting from a sheet, said sheet is cut deeply “right through”, continuously, along a succession of at least two cutting patterns that intersect so as to constitute a resulting pattern that will

form a detached element constituting the element of relatively small size, this cutting operation taking place using a succession of synchronized cutting cylinders carrying one of the cutting patterns respectively, anvil cylinders being interposed between these cutting cylinders.

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13. A device for cutting out elements of relatively small size, especially such as planchettes, characterized in that it comprises a rotary cutting device comprising a succession of synchronized cutting cylinders having respective cutting threads, anvil cylinders being interposed between these cutting
10 cylinders, the cutting threads on the cylinders being supplemented so as to form an entire figure when the cutting cylinders rotate in a synchronized manner and when suitably adjusted.

14. The cutting device as claimed in claim 13, characterized in that each
15 cutting cylinder is a magnetic cylinder covered with a magnetizable flexible plate retained by demagnetization forces, especially made of steel, bearing the cutting threads, which are electrochemically etched.

15. The cutting device as claimed in either of claims 13 and 14,
20 characterized in that it includes a base anvil cylinder.

16. A device for manufacturing elements of relatively small size, especially such as planchettes, characterized in that it includes a reel holder, a printing device, with at least one printing unit, and a cutting device described
25 in claims 13 to 15.

17. The device as claimed in claim 16, characterized in that it includes a printing device having at least two printing units with a set of bars for turning the sheet over between the units.

18. The device as claimed in claim 16, characterized in that it includes a printing unit having at least two printing units with a device for reversing the rotation of one of the printing units.
- 5 19. The manufacturing device as claimed in one of claims 16 to 18, characterized in that it includes, after the cutting device, a stripping device, in particular one using a peel bar and suction.
- 10 20. The manufacturing device as claimed in one of claims 16 to 19, characterized in that it includes an antistatic treatment device.
- 15 21. A security element of relatively small size, characterized in that it is obtained using the manufacturing and/or cutting methods described in one of claims 1 to 12 and in that it includes identification patterns observable to the naked eye.
- 20 22. The security element as claimed in claim 21, characterized in that it includes patterns chosen from patterns that are visible in natural light, visible under UV light, luminescent patterns, particularly fluorescent or phosphorescent patterns, which are detectable by near or intermediate infrared radiation, thermochromic patterns, piezochromic patterns, patterns based on DNA tracers, patterns that are optically variable, especially iridescent or based on liquid crystals or diffraction gratings or moiré patterns
- 25 or holograms, electromagnetic patterns, or combinations thereof.
23. The security element as claimed in either of claims 21 and 22, characterized in that it includes, beneath or alongside said patterns, printing of electromagnetic, especially magnetic, character and in particular

continuous tracks or codes in the form of magnetic bits.

24. The security element as claimed in one of claims 20 to 23,
characterized in that it includes chemical authentication reactants or reactants
5 that reveal a specific event.

25. A security element of relatively small size, characterized in that it is
obtained using the manufacturing and/or cutting methods described in one of
claims 1 to 12 or as claimed in one of claims 20 to 24, and in that the shape
10 of said element is a security characteristic.

26. A security sheet comprising a fibrous substrate which includes at least
one security element of relatively small size obtained using the
manufacturing and/or cutting methods described in one of claims 1 to 12 or
15 as described in one of claims 21 to 25.

27. A decorative sheet comprising a fibrous substrate, which includes at
least one decorative element of relatively small size obtained using the
manufacturing and/or cutting methods described in one of claims 1 to 12.
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28. A security document comprising, as base, a sheet as claimed in
claim 26.

29. A package comprising a sheet as claimed in claim 26 or 27.